PROJECT SCOPE

Virtual Cybersecurity Lab Setup

Objective:

To simulate a secure, real-world environment for offensive and defensive security testing through virtual machines.

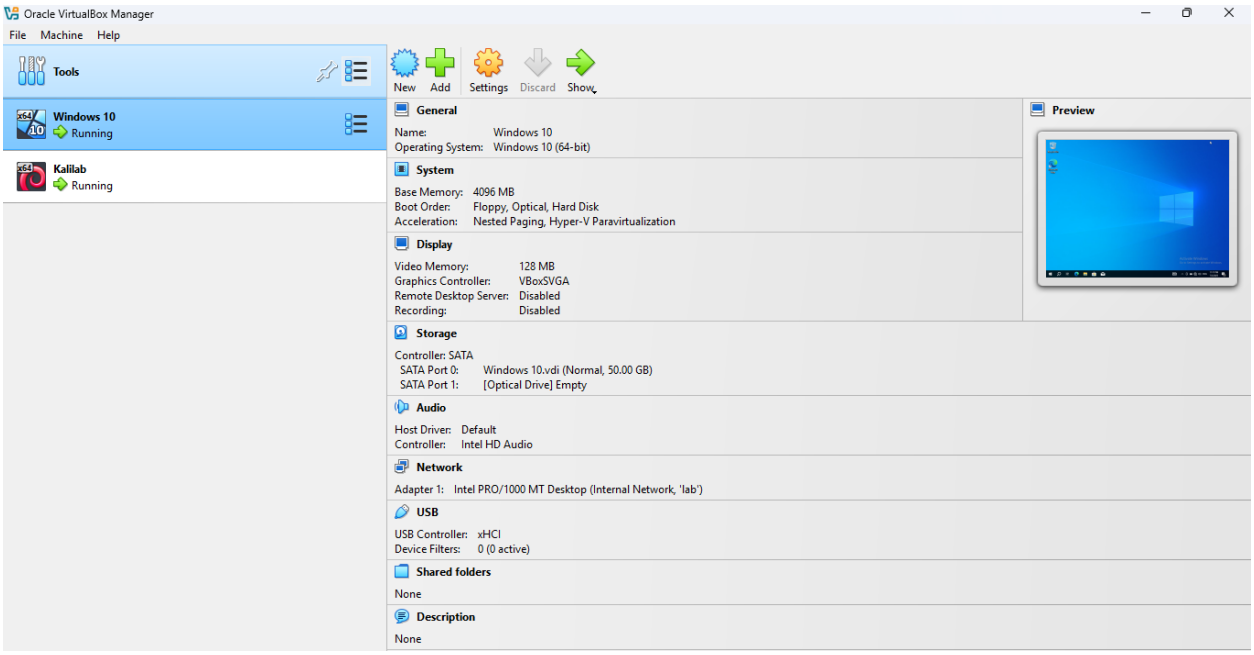
Activities:

- Install a Type 2 hypervisor (e.g., VirtualBox, VMware Workstation/Player)
- Create and configure two virtual machines:
- Kali Linux (attacker environment)
- Microsoft Windows 7 or 10 (target environment)
- Establish internal virtual networking between VMs
- Verify connectivity via ping tests, shared directories, and service enumeration

install Oracle VirtualBox on window 11.

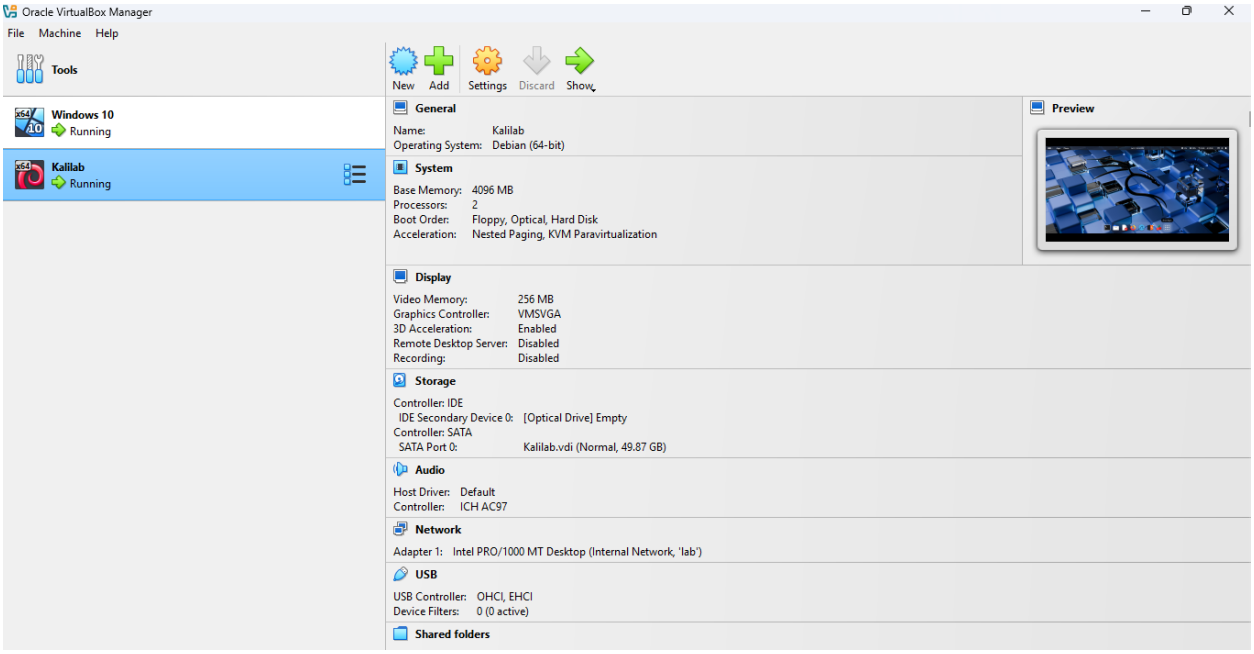
Installed Windows 10 VM

Screenshot below:



Installed Kali VM

Screenshot below:



Establish an internal network between Kali Linux and Windows VMs so they can talk to each other privately.

Network
network name- lab

subnet-255.255.255.0

kalilab - 192.168.10.10

Windows - 192.168.10.11

✅ Step-by-Step Guide: Internal Networking in VirtualBox

- Step 1: Shut Down Both VMs

Both Kali and Windows VMs are powered off before changing their network settings.

- Step 2: Configure Kali Network Settings in VirtualBox

1. Open VirtualBox Manager
2. Select Kali Linux VM > Click Settings > Go to Network
3. Under Adapter 1:

- Check: Enable Network Adapter
- Attached to: Internal Network
- Name: lab

4. Click OK

Repeat the same steps for the Windows VM:

- Select Windows VM > Settings > Network
- Adapter 1:
- Enable Network Adapter
- Attached to: Internal Network
- Name: lab

- Step 3: Start Both VMs
- Step 4: Assign IP Addresses Manually

Internal networks do not have DHCP, so you must manually set static IPs.

On Kali Linux:

1. Open terminal
2. Check your network interface name:

3.Assign a static IP

sudo ip addr add 192.168.10.10/24 dev eth0

sudo ip link set eth0 up

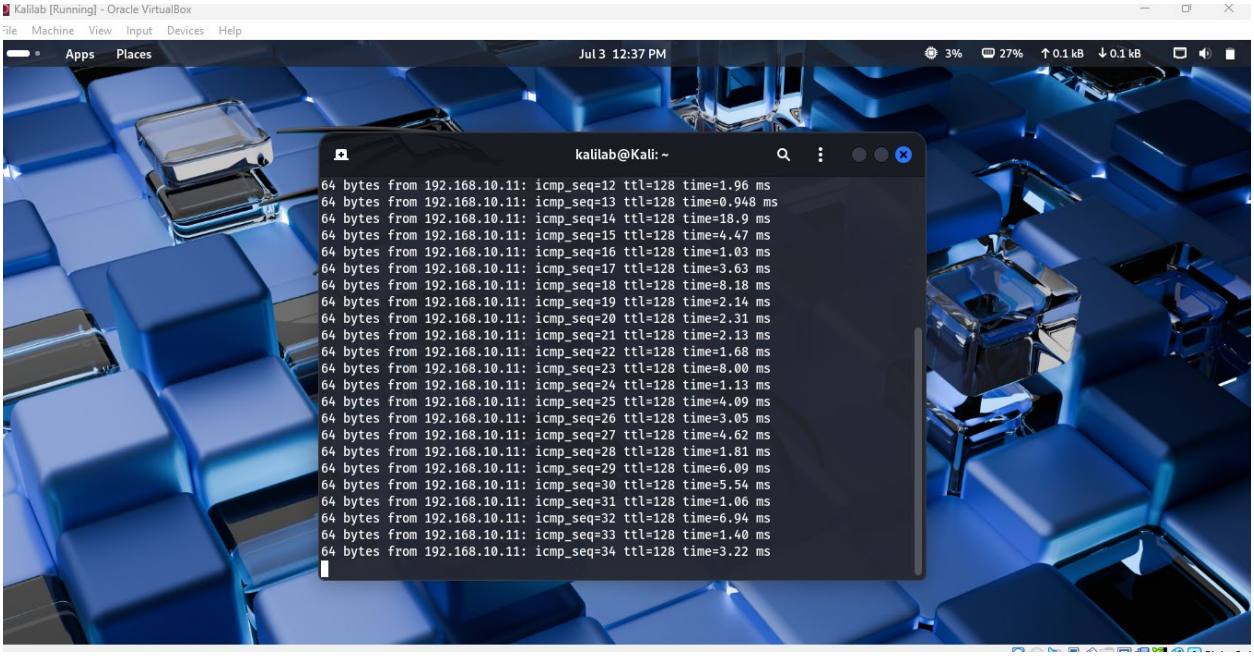
On Windows VM:

1. Go to Control Panel > Network and Internet > Network Connections
2. Right-click the Ethernet adapter > Properties
3. Select Internet Protocol Version 4 (TCP/IPv4) > Properties
4. Set:

- IP address: 192.168.10.11
- Subnet mask: 255.255.255.0
- Leave Gateway and DNS blank (optional, no internet here)

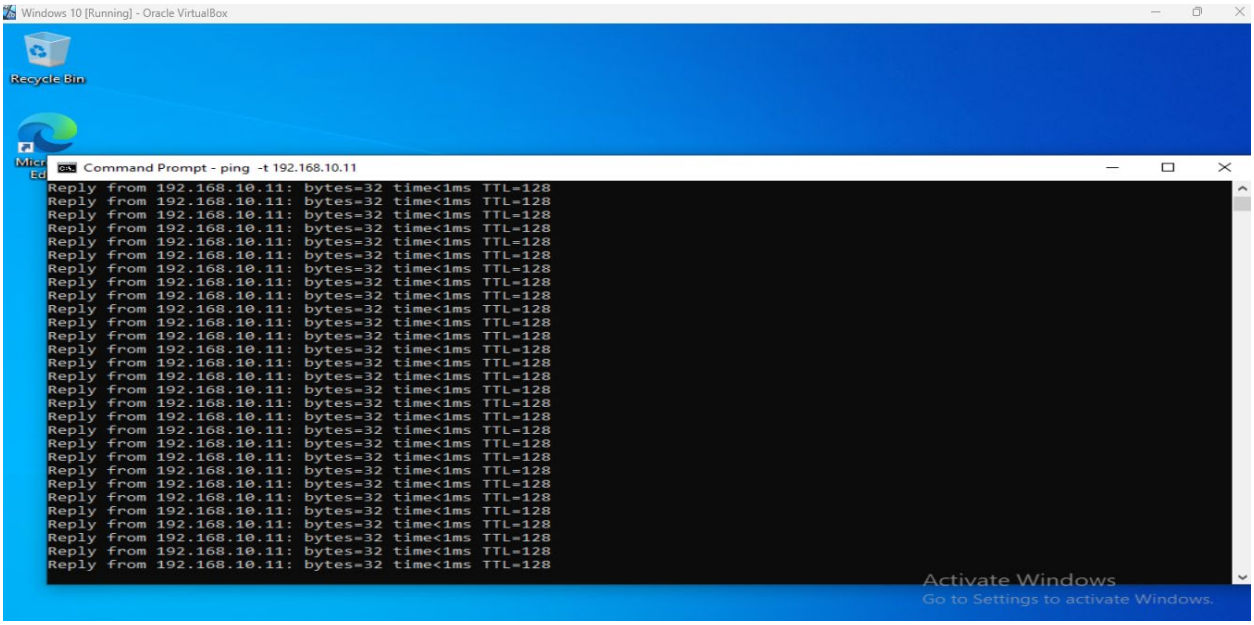
Step 5 test for connectivity

Ping windows 10 From Kali bash: ping 192.168.10.10



Ping Kali From windows: cmd ping 192.168.10.11

Screenshot below:



Both Pings